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<b>14. ABSTRACT</b> Data were collected from a military sample of 181 adults to estimate the relationships of Transformational and Transactional leadership style and leader power. Leadership style was measured by the Multifactor Leadership Questionnaire (MLQ) and leader power by the Rahim Leader Power Inventory (RLPI). Confirmatory factor analyses (CFAs) performed separately for the MLQ and RLPI identified single-factor solutions. Using these measurement models the relationship between the single factors was estimated with a correlation of .57 between the factors representing Leadership Style and Leader Power. The CFA results are contrary to developer's theories of both scales, but are consistent with studies reporting more parsimonious factor analytic solutions. Results from the current study may be the consequence of the well-defined hierarchical structure of the military organization in which the sample was collected. Additional studies are needed in organizations with differing structures ranging from hierarchical to completely flat to determine if organizational structure is related to the factors and factor structure of these two measures.					
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## 7. Performing Organizations

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## The Correlation between Leadership Style and Leader Power

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Data were collected from a military sample of 181 adults to estimate the relationships of Transformational and Transactional leadership style and leader power. Leadership style was measured by the Multifactor Leadership Questionnaire (MLQ) and leader power by the Rahim Leader Power Inventory (RLPI). Confirmatory factor analyses (CFAs) performed separately for the MLQ and RLPI identified single-factor solutions. Using these measurement models the relationship between the single factors was estimated with a correlation of .57 between the factors representing Leadership Style and Leader Power. The CFA results are contrary to developer's theories of both scales, but are consistent with studies reporting more parsimonious factor analytic solutions. Results from the current study may be the consequence of the well-defined hierarchical structure of the military organization in which the sample was collected. Additional studies are needed in organizations with differing structures ranging from hierarchical to completely flat to determine if organizational structure is related to the factors and factor structure of these two measures.

**Key Words:** leadership style, leader power, confirmatory factor analysis

Organizational performance has been shown to be tied to many human attributes such as cognitive ability, personality, and leadership. The role of leadership on organizational performance has received much attention (e.g., Lieberman & O'Connor, 1972; Obiwuru, Okwu, Akpa, & Nwankwere, 2011; Ogbonna & Harris, 2000; Yukl, 2006). Approaches involving ability and personality based theories of leadership have been proposed. Cognitive resource leadership theory (Fiedler &

the cumulative knowledge base. The current effort addressed two aspects of leadership, leadership style and leader power and investigated their relationship.

### Leadership Style

Stogdill (1974) noted that there are many definitions of leadership. Some view leadership as a collection of traits such as the great man theory advanced by Carlyle (1888), while others define it as behaviors and some as an on-going process between leaders and followers (Graen & Uhl-Bien, 1995). Northouse, (2001) provides an informative summary. More recently (Bass & Avolio, 1995; Burns, 1978), much research emphasis in leadership has shifted to style. Northouse summarized the style approach as being descriptive of what a leader does rather than prescriptive of what a leader should do. Descriptive theories offer understanding rather than direction for leaders.

Bass (1985) and Bass and Avolio (1997) building on the work of Burns (1978) developed the descriptive Full Range Leadership Style Theory. Bass and Avolio argued that leadership style could be represented by

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The opinions expressed are those of the authors and are not necessarily those of the United States Government, the Department of Defense, or the United States Air Force. Address correspondence to Dr. Malcolm James Ree at Our Lady of the Lake University, 411 SW 24<sup>th</sup> Street, San Antonio, Texas, 78207-4689. Send e-mail to [mjree@lake.ollusa.edu](mailto:mjree@lake.ollusa.edu) Garcia, 1987) is strongly dependent on the individual differences model of ability while Judge, Bono, Ilies, and Gerhard (2002) have shown the nexus of leadership and personality. Leadership can be studied via these variables with the expectation of advancing

three core categories - Transformational, Transactional, and Passive-Avoidant. Bass and Avolio further asserted that a leader had to master transactional leadership in order to be a transformational leader. Additionally, Bass and Avolio defined the Passive-Avoidance style not as leadership, but as the absence of leadership. They developed the Multifactor Leadership Questionnaire (MLQ; Bass & Avolio, 1995, 2000) to measure these three core styles and several subcategories of these styles.

The three leadership styles proposed by Bass and Avolio (1997) have not always been confirmed by factor analytic studies. Various studies at the item and scale level have found poor fit to the scales of the MLQ or have pointed to differing factor configurations (e.g., Bullis, Kane, & Tremble, 1997; Muenjohn & Armstrong, 2008; Tejeda, Scandura, & Pillai, 2001; Yammarino, Spangler, & Dubinsky, 1998). For example, Bullis et al. observed that the relationship between transformational leadership and contingent reward varied across organizational level and that strong correlations among the five transformational scales suggested that they did not represent separate components of transformational leadership. Muenjohn and Armstrong (2008) conducted confirmatory factor analyses using item-level data and reported poor fits for models with one, three, and nine factors.

Several studies have reported strong correlations between the transformational leadership factors (Avolio, Bass, & Jung, 1999; Carless, 1998; Tejeda et al., 2001). Although Tejeda et al. (2001) reported correlated second-order factors they failed to account for the correlations among the second-order factors by proposing higher (third-order) factors in factor analytic models.

There is no consensus about the factor structure of the MLQ. Further, a hierarchical factor has not been tested.

### **Leader Power**

Inherent in the definition of leadership is power (Chemers, 1997). A leader cannot lead without the influence or power to do so. Power can have both positive and negative implications. Effective leaders tend to be perceptive in managing power and using it to accomplish a goal (De Jong & Van Witteloostuijn, 2004). Understanding the uses of power is essential to understanding leadership.

Leader power does not seem to be a single entity but several approaches, factors, or methods. Several taxonomies of leader power have been suggested (Yukl & Falbe, 1991). French and Raven (1959) identified five sources of power that can be grouped

into two categories: organizational power (Coercive, Legitimate, and Reward) and personal power (Expert and Referent). The French and Raven taxonomy appears to be the most popular in leadership research and application (Cobb, 1980; Frost & Stahelski, 1988; Lumenburg, 2012; Rahim, 1988). There have been attempts (Brown, Lusch, & Muehling, 1983; Kasulis & Spekman, 1980; Lusch & Brown, 1982) to expand the French and Raven taxonomy to include other power bases (e.g., informational, legalistic) or to elaborate and differentiate within each of the original power bases (Raven, 1993). Gaski (1986) argued that expansion was redundant and that the added power bases can be subsumed in the five French and Raven power bases.

A frequently used measure of leadership power based on French and Raven (1959) is the Rahim Leader Power Inventory (RLPI; Rahim, 1988). Rahim (1988) confirmed and refined the factor structure on the basis of lengthy and repeated feedback from university faculty and the factor analysis of items (Rahim & Magner, 1996). The RLPI yields five scores corresponding to the French and Raven (1959) bases of power - Coercive, Legitimate, Reward, Expert, and Referent.

Rahim (1988) asserted that the five power bases are unrelated to one another. Contrary to Rahim's assertion, Atwater and Yammarino (1996) found that French and Raven's (1959) five power bases were positively correlated. Their sample was 280 randomly selected non-supervisory employees, in a wide range of occupations rating their leaders. Atwater and Yammarino reported correlations ranging from .12 (Coercive-Expert) to .55 (Referent-Expert and Legitimate-Expert). Despite the assertion of independence among the five factors the correlations suggest either one or more common factors or common factors and a hierarchical structure.

### **Relations of Leadership Style and Leader Power**

Given the apparent similarities of leader power behavior and leadership style behavior it is expected that organizational- power scales (Coercive, Legitimate, and Reward) would show their highest correlations with Transactional leadership style scales. Transactional leadership style is posited on an exchange between the leader and the follower. Coercive, Legitimate, and Reward leadership power are also based on exchange. For example complete this task and you will be offered a promotion (reward). Alternatively If you do not complete this task you will be punished (Coercive). Finally, I have the legal power to make you do this task (Legitimate).

Similarly, personal-power scales (Expert and Referent) should show their highest correlations with

Transformational leadership style scales. Both Expert and Referent power might be shown by transformational leadership that enables the follower to go beyond expectations. For example, the transformational leader might motivate employees (Referent) and give individual guidance (Expert) and consideration (Referent) to employees thus enabling them to perform beyond expectations.

The purpose of the current study was to examine the relationships between leaders' transformational and transactional leadership styles and leader powers. Further, the correlations of factors of Leadership Style and factors of Leader Powers were estimated.

## Method

### Participants

Participants were 181 active duty members of the American armed services stationed in Texas and were nearly evenly distributed among the Army (30%), Navy (35%), and Marine Corps (35%). Fully 99% were from the enlisted ranks. They were 86% male and ranged in age from 19 to 55 with a mean of 29 years. The average time in service was 7 years with a range of 1 to 38 years and a mode (16%) of one year. The three military occupations of infantry, supply, and law enforcement accounted for 70% of reported occupations and were equally frequent. A high school diploma was held by 28%, while 50% had some college, and 22% had an associate, baccalaureate, or graduate degree. Self-reported ethnicities and races were 94% Hispanic, 3% White, 1% African-American, and 2% "Other."

### Measures

**Multifactor Leadership Questionnaire (MLQ).** The MLQ (Bass, 1985) was designed to measure the "full range" of leadership styles (Bass, 1990; Bass & Avolio, 1995, 2000), including transformational, transactional, and passive-avoidance non-leadership. It describes the leadership styles based on followers rating of the leader. MLQ Form 5X (Bass, 1997) uses 45 items combined into 12 scales. The first five scales (Idealized Influence – Attributed, Idealized Influence – Behavior, Inspirational Motivation, Intellectual Stimulation, and Individual Consideration) are used to assess transformational leadership. The Idealized Influence – Attributed (IIA) and Idealized Influence – Behavior (IIB) scales measure the extent to which the leader shows conviction and trust and takes a stand on difficult issues. Transformational leaders also present critical values and stress the importance of purpose, commitment, and the ethical effects of decisions. Inspirational Motivation (IM) is characterized by the leader's emphasis on the future, challenging the followers to achieve more and provides

encouragement for that which needs to be done. Intellectual Stimulation (IS) is provided by leaders that question current ideas, stimulate new perspectives, and encourage open expression of ideas. Individual Consideration (IC) of followers considers individual needs, abilities, and aspirations. Contingent Reward and Management-by-Exception – Active assess transactional leadership. In Contingent Reward (CR) leaders engage in constructive reward for performance. Leaders displaying Management-by-Exception – Active (MEA) monitor followers' performance and if deviations from standards occur, take corrective action. Management-by-Exception – Passive (MEP) and Laissez-Faire Leadership (LFL) reflect a "hands off" leadership style where group members are allowed to make decisions. These nine scales are combined to create three leadership style indicators representing transformational, transactional, and passive-avoidance non-leadership. Extra effort (EE), Effectiveness (EFF), and Satisfaction (SAT) are combined to create a measure of leadership outcome. The passive non-leadership style scales (MEP and LFL) and the leadership outcome scales (EE, EFF, and SAT) were not used in the current analyses and are included here only for completeness. Detailed description may be found in Bass (1997).

Bass and Avolio (1995, 2000) provided reliability estimates for all items and for each leadership factor that ranged from .74 to .94. These estimates were based on ratings of a target leader evaluated by others.

Although the MLQ has been criticized (Tejeda et al., 2001; Yukl, 1999), it remains the most widely used measure of transformational-transactional leadership style and deserves attention, especially as it was developed by major proponents of the transformational-transactional theory of leadership style.

**Rahim Leader Power Inventory (RLPI).** The RLPI (Rahim, 1988) is founded on French and Raven's (1959) bases of power taxonomy and has five scales: Coercive, Reward, Legitimate, Expert, and Referent. Coercive power is based on subordinates' perception that a superior has the ability to punish them if they fail to conform to the superior's influence. Reward power is based on subordinates' perception that a superior can reward them for desired behavior. Legitimate power is based on subordinates' belief that a superior has the right to prescribe and control their behavior. Expert power is based on subordinates' belief that a superior has job experience, expertise, or special knowledge in a relevant area. Referent power is based on subordinates' identification with and attraction to a superior. Factor analyses of the scales indicate that Coercive, Reward, and Legitimate power bases and Expert and Referent power bases can be

reclassified as organizational and personal power bases (Rahim, 1988; Yukl & Falbe, 1991).

Rahim (1988) estimated the reliabilities of the RLPI scales with data collected from 297 undergraduate students. The retest reliability coefficients from the students who completed the RLPI twice at an interval of two weeks, ranged between .77 and .91.

### Research Questions

The first research question was whether the scales of the MLQ and the RLPI were correlated. The second question was what was the factor structure of each and the third question was whether the factors were correlated across the MLQ and RLPI.

### Analyses

The analyses began with computation of means, standard deviations, and correlation coefficients. From these, the covariance matrix was calculated.

This covariance matrix was used in the Confirmatory Factor Analyses using LISREL 9.1. The analytic plan was to fit measurement models for each of the instruments separately until a satisfactory model was established for each instrument. Using the recommendations of Lance, Butts, and Michels (2006), the following fit statistics were evaluated using the associated values: Chi-square was non-significant, Root Mean Square Error of Approximation (RMSEA) was less than or equal to .08 for acceptable fit and less than or equal to .05 for a close fit, Comparative Fit Index (CFI) was greater than or equal to .90, Goodness of Fit Index (GFI) was greater than or equal to .90, Standardized Root Mean Square Residual (SRMR) was less than or equal to .05, and Critical N (CN) was greater than or equal to 200.

### Results and Discussion

The means, standard deviations, and correlations of the variables are presented in Table 1.

Table 1  
*Means, Standard Deviations, and Correlations*

Score	Mean	SD	COER	REW	LEGIT	EXPT	REF	IIA	IIB	IM	IS	IC	CR	MEA
COER	3.59	0.81	1.00											
REW	3.62	0.64	0.57	1.00										
LEGIT	3.78	0.60	0.31	0.53	1.00									
EXPT	3.62	0.65	0.37	0.65	0.69	1.00								
REF	3.29	0.54	0.31	0.56	0.51	0.65	1.00							
IIA	2.85	0.96	0.20	0.46	0.32	0.51	0.38	1.00						
IIB	2.75	0.92	0.13	0.44	0.31	0.49	0.37	0.87	1.00					
IM	2.83	0.91	0.26	0.47	0.28	0.48	0.36	0.87	0.84	1.00				
IS	2.67	0.93	0.23	0.48	0.29	0.52	0.40	0.85	0.83	0.83	1.00			
IC	2.50	1.00	0.11	0.40	0.25	0.47	0.41	0.81	0.77	0.74	0.84	1.00		
CR	2.86	0.93	0.20	0.45	0.27	0.49	0.37	0.89	0.86	0.88	0.86	0.76	1.00	
MEA	2.38	0.87	0.12	0.30	0.21	0.35	0.27	0.65	0.64	0.55	0.63	0.57	0.62	1.00

Note. The scores from the RLPI are Coercive (COER), Reward (REW), Legitimate (LEGIT), Expert (EXPT), and Referent (REF). The scores from the MLQ are Idealized Influence – Attributed (IIA), Idealized Influence – Behavior (IIB), Inspirational Motivation (IM), Intellectual Stimulation (IS), Individual Consideration (IC), Contingent Reward (CR), and Management-by-Exception – Active (MEA). SD is standard deviation.

All correlations above  $r = .15$  were statistically significant at  $p < .05$ .

N = 181

Within the Multifactor Leadership Questionnaire, the strongest correlation was between Individual Consideration (IC) and Inspirational Motivation (IM) ( $r = .888$ ). Within the Rahim Leader Power Inventory, the strongest correlation was between Legitimate and Referent power ( $r = .692$ ). Across the instruments the strongest correlation was between Intellectual Stimulation and Expert power ( $r = .520$ ). Positive

manifold (Spearman, 1904) was observed for all 12 scores (seven MLQ and five RLPI scores).

The correlations of the RLPI scales representing organizational power (Coercive, Reward, Legitimate) showed their highest values with the MLQ Transformational scales of IM, IS, IIA, and IIB. This was contrary to expectations. The correlations of the RLPI scales representing personal power (Expert, Referent) also showed their highest correlations with

the MLQ Transformational scales. In fact, they showed expected correlations with the MLQ Transformational scales and, unexpectedly, one Transactional scale, CR. The other Transactional scale, MEA, showed stronger correlations with Expert and Referent power than with Coercive, Reward, and Legitimate power. Finally, Coercive power had the lowest correlations with the leadership style scales and Expert power had the highest correlations with the leadership style scales. In this sample the distinction between organizational power and personal power was not evident.

was found to provide a good fit to the data and was labeled Leadership Style. Fit statistics are shown in Table 2.

Table 2

*Fit statistics for the Confirmatory Factor Analytic Models*

Model/ Number of Factors	$\chi^2$	RMSEA	CFI	GFI	SRMR	CN
Leadership/2	Inadmissible solution as correlation between the factors exceeded 1.0					
Leadership/1	ns <sup>a</sup>	.00	1.00	.98	.001	581.530
		(.00 - .06)				
Power/2	32.79	.20	.94	.93	.056	73.80
	(df = 4)	(.14 - .27)				
Power/1	ns	.00	1.00	1.00	.013	964.402
		(.00 - .08)				

*Note.* ns indicates not significant.

The strongest factor loading for the one factor Leadership Style model was for IIA (.946) while the lowest (.682) was for MEA. With the exception of MEA all loadings were above .80 and five were above .90. The median value was .905 for IS.

The RLPI measurement model was estimated in a similar manner. Two models were tested, one with one factor and another with two factors. The one factor model had a covariance of error terms for Coercive and Reward power. The more parsimonious one factor Leader Power model was accepted. Fit statistics are shown in Table 2.

The strongest factor loading for the Leader Power model was .910 for Expert power and the weakest was .412 for Coercive power. The other three loadings are well characterized by the median value of .723 for Reward power. See Table 3.

Finally, the two measurement models were used to obtain the correlation of the Leadership Style factor and the Leadership Power factor. The correlation between the two resultant factors, Leadership Style and Leader Power, was .57.

It is appropriate to note that these results may, in part, be due to the nature of military organizations

A measurement model with two factors representing the five MLQ Transformational (IIA, IIB, IM, IS, and IC) and two Transactional (CR and MEA) scales was estimated, but found to be inadmissible when the correlation between the factors exceeded 1. Inspection of the modification indexes from the initial estimation suggested there should be covariances of the error terms of IM and MEA, IS and IC, IIA and IIB, and IC and IIA. A single factor model was estimated. The final one factor model included these error covariances. This single factor model

from which the participants were drawn. In the military, there is clear cut definition of rank and authority and there are numerous rules prescribing behaviors and actions. Additionally, there are equally clear cut rules and regulations proscribing other behaviors and actions.

The correlation (see Table 1) between the MLQ Intellectual Stimulation scale and the RLPI Expert Power scale ( $r = .520$ ) was not surprising. In the American military, the accumulation of knowledge (expertise) is mandatory for promotion and is generally given significant weight in the promotion process. The leader using expert power could be an influential source of intellectual stimulation, especially in an organization designed around knowledge such as the American military.

Table 3

*Factor Loadings for the Measurement Model*

Power	Loading	Style	Loading
COER	.421	IIA	.946
REW	.723	IIB	.917
LEGIT	.747	IM	.922
EXPT	.910	IS	.905

REF	.718	IC	.827
		CR	.941
		MEA	.682

A limitation of this study is that participants were active duty members of the American military. The military is a hierarchical organization with a well-defined structure and rules. In a flat organization or an organization with few rigorously defined rules and few rank levels, the results might be expected to be different. Further a sample with a greater proportion of women would be desirable.

Future research should determine the extent to which positive manifold occurs across leadership measures. Positive manifold occurs when all of the variables are positively correlated with each other. Positive manifold has been noted for a century in measures of cognitive ability (Spearman, 1904) and was found here. If positive manifold were found to be a pervasive feature and if it leads to a general common factor, as it does in cognitive ability, this general factor needs to be studied to determine its utility for prediction and explanation.

Further, positive manifold created strong general factors in both instruments and they are moderately to strongly correlated (Cohen, 1988). This suggests that these two factors (Leadership Style and Leader Power) measure something in common. Although inspection of the content is evocative, as Murphy (2009) observed, content is an imperfect guide to what is being measured. Rather what is needed is a systematic program of research to relate the two correlated factors to known constructs such as cognitive ability, personality, age, and job tenure.

This study should be replicated in organizations with differing structures ranging from hierarchical to completely flat. The organizational structure should be studied to determine if it influences the factors and factor structure of these two measures. Additionally, a more even mix of male and female participants should be sought. Studies in varied geographic locations would be informative.

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